

इंटरनेट

मानक

Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 7136 (1973): Megaphones [LITD 7: Audio, Video and Multimedia Systems and Equipment]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

BLANK PAGE



Indian Standard
SPECIFICATION FOR
MEGAPHONES

UDC 621.395.61



© Copyright 1974

INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110001

March 1974

Price Rs 3.00

Rs 5

Gr 2

Indian Standard

SPECIFICATION FOR MEGAPHONES

Acoustics Sectional Committee, ETDC 27

Chairman

DR M. PANCHOLY

Representing

National Physical Laboratory (CSIR), New Delhi

Members

SHRI I. S. AHUJA	Ahuja Radios, New Delhi
SHRI H. K. L. ARORA	All India Radio and Electronics Association, Bombay
SHRI R. G. KESWANI (<i>Alternate</i>) (Bombay)	
SHRI ARUP CHAUDHURI (<i>Alternate</i>) (Calcutta)	
SHRI L. S. V. EASWAR (<i>Alternate</i>) (Madras)	
DR A. S. BHADURI	National Test House, Calcutta
SHRI B. P. GHOSH (<i>Alternate</i>)	
LT-COL T. R. BHALOTRA	Ministry of Defence (DGI)
MAJ T. S. CHOWDHARY (<i>Alternate</i>)	
SHRI P. S. ENDLAW	Director General of Posts and Telegraphs Department, New Delhi
SHRI J. S. MONGA	Bolton Industrial Corporation, New Delhi
SHRI M. S. MONGA (<i>Alternate</i>)	
SHRI K. D. PAVATE	Central Electronics Engineering Research Institute (CSIR), Pilani
SHRI M. R. KAPOOR (<i>Alternate</i>)	
DR B. S. RAMAKRISHNA	Indian Institute of Science, Bangalore
CMDE K. R. RAMNATH	Ministry of Defence (R&D)
SHRI M. S. NARAYANAN (<i>Alternate</i>)	
REPRESENTATIVE	Mulchandani Electricals & Radio Industries Ltd, Bombay
RESEARCH ENGINEER	Directorate General of All India Radio, New Delhi
SHRI M. SANKARALINGAM	Directorate General of Supplies and Disposals (Inspection Wing), New Delhi
DR D. L. SUBRAHMANYAM	Sarabhai Electronics Research Centre, Ahmedabad

(Continued on page 2)

© Copyright 1974

INDIAN STANDARDS INSTITUTION

This publication is protected under the *Indian Copyright Act* (XIV of 1957) and reproduction in whole or in part by any means except with written permission of the publisher shall be deemed to be an infringement of copyright under the said Act.

IS : 7136 - 1973

(Continued from page 1)

Members

SHRI L. C. VASWANI
DEPUTY DIRECTOR, STANDARDS
(TELECOMMUNICATIONS) (*Alternate*)

SHRI L. K. VISWANATH

Representing

Railway Board (Ministry of Railways)

Philips India Ltd, Calcutta; and The Radio Electronics & Television Manufacturers' Association, Bombay

SHRI K. G. AJWANI (*Alternate*) Philips India Ltd, Calcutta

SHRI D. P. SHARMA (*Alternate*) The Radio Electronics & Television Manufacturers' Association, Bombay

SHRI N. SRINIVASAN,
Deputy Director (Elec tech)

Director General, ISI (*Ex-officio Member*)

Secretary

SHRI S. MUKHOPADHYAY

Assistant Director (Elec tech), ISI

Indian Standard

SPECIFICATION FOR MEGAPHONES

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 7 December 1973, after the draft finalized by the Acoustics Sectional Committee had been approved by the Electrotechnical Division Council.

0.2 The object of this standard is to specify uniform physical, mechanical, electrical and climatic requirements for the purpose of evaluation of the quality of megaphones.

0.3 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard prescribes the general and performance requirements of transistorized megaphones.

1.2 Methods of measurements and electro-acoustic requirements and classification of type tests, acceptance tests and routine tests are not covered in this standard.

2. TERMINOLOGY

2.0 For the purpose of this standard, the following definition shall apply.

2.1 Megaphone — A device used to intensify or direct the sound. This consists of a microphone, an amplifier, a loudspeaker and power supply, built into a single portable unit.

*Rules for rounding off numerical values (*revised*).

3. CATEGORY

3.1 The megaphone shall be able to withstand the following climatic severities :

<i>Climatic Test</i>	<i>Severities</i>
Dry heat	+70° C
Cold	-10° C
Damp heat (cycling)	2 cycles

NOTE — In case of special requirements where the above category cannot be applied, different combinations of climatic severities may be agreed to between the purchaser and the supplier, provided that the degrees of severity are chosen from those specified in IS : 2106* series.

4. MATERIALS COMPONENTS, WORKMANSHIP AND ACCESSORIES

4.1 Materials and Components — The megaphone shall be constructed from suitable materials and components conforming to relevant Indian Standard Specifications, if any.

4.2 Workmanship — All parts of the megaphone shall be manufactured thoroughly workmanlike manner and in accordance with good engineering practice. Dry battery should be easily replaceable.

4.3 Each megaphone shall be provided with at least the following :

- a) Volume control,
- b) Strap for hanging from shoulder, and
- c) On-off switch (non-locking type).

4.3.1 The following optional facilities may be provided :

- a) Input socket with appropriate markings and cable, for use with external power supply. The socket shall be suitably polarized.
- b) Input socket and cable with remote on-off switching facility for use with external microphone.
- c) Socket for auxiliary input.
- d) Microphone dust cover.

5. MARKING

5.1 Each megaphone shall be clearly and indelibly marked with the following information.

- a) Name and trade-mark of the manufacturer,
- b) Serial number,

*Environmental tests for electronic and electrical equipment.

- c) Rated power output of the amplifier,
- d) Supply voltage and battery polarity, and
- e) Country of origin.

5.2 Each megaphone may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard, under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions, under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

6. MECHANICAL REQUIREMENTS

6.1 Dimension — The dimensions shall comply with the manufacturer's specification.

6.2 Weight — Weight of the complete unit without battery and without shoulder strap shall be not more than 2.5 kg.

7. ELECTRO-ACOUSTIC REQUIREMENTS

7.1 Output Sound Pressure Level — For the purpose of this measurement, the level of speech and the setting of the volume control shall be such that there is no appreciable acoustic feed back. The output sound pressure level at a specified point (1.5 meters) on the axis shall be not less than 90 dB.

7.2 Harmonic Distortion — The overall harmonic distortion shall be less than 10 percent at 1000 Hz at the conditions specified in 7.1.

7.3 Frequency Response — The overall frequency response shall be within ± 3 dB from 300 to 3000 Hz.

7.4 Power Source — It shall be possible to use commonly available dry cells which can be accommodated within the units.

7.5 Life of Power Source — With a 1000 Hz sinusoidal input signal and the amplifier operated at 10 percent of the rated output power, the on-load voltage per cell shall not fall below 0.75 V/cell in less than 5 hours.

7.6 Rated Power Output of the Amplifier — The rated power output shall be as specified by the manufacturer.

7.7 Temperature Limited Output — Under Consideration.

8. CLIMATIC TESTS

8.1 Climatic Sequence — The climatic sequence shall consist of dry heat, damp heat (cycling) and cold tests carried out in the following order:

- a) Dry heat (*see* 8.1.1),
- b) Damp heat (cycling) — first cycle (*see* 8.1.2),
- c) Cold (*see* 8.1.3), and
- d) Damp heat (cycling) — remaining cycles (*see* 8.1.4).

8.1.1 Dry Heat — The megaphone shall be subjected to dry heat test in accordance with IS : 2106 (Part IV)-1963*. The temperature of the test chamber shall be maintained at the appropriate maximum value of the category (*see* 3.1).

8.1.2 Damp Heat (Cycling) — The megaphone shall be subjected to the first cycle of damp heat (cycling) test in accordance with IS : 2106 (Part II)-1962†.

8.1.3 Cold — The megaphone shall be subjected to cold test in accordance with IS : 2106 (Part III)-1963‡. The temperature of the test chamber shall be maintained at the appropriate minimum value of the category (*see* 3.1).

8.1.4 Damp Heat (Cycling) — The megaphone shall be subjected to the remaining cycles of damp heat (cycling) test in accordance with IS : 2106 (Part II)-1962† (*see* 3.1). The number of remaining cycles in this case is one cycle.

8.1.5 Final Measurement — At the end of the climatic sequence the megaphone shall be kept at the standard atmospheric conditions specified in IS : 2106 (Part III)-1963‡ for 24 hours for recovery. At the end of the recovery period, there shall be no mechanical damage and the megaphone shall conform to the requirements specified in 7.

8.2 Water Spray — The megaphone shall pass the water spray test specified in IS : 2106 (Part XI)-1965§. The normal operating position of the megaphone shall be horizontal. At the end of the recovery period there shall be no mechanical damage and the megaphone shall conform to the requirements specified in 7.

8.3 Bump — This test shall be carried out in accordance with IS : 2106 (Part VII)-1964||. At the end of the recovery period there shall be no

*Environmental tests for electronic equipment : Part IV Dry heat test.

†Environmental tests for electronic equipment : Part II Damp heat (cycling) test.

‡Environmental tests for electronic equipment : Part III Cold test.

§Environmental tests for electronic equipment : Part XI Water spray test.

||Environmental tests for electronic equipment : Part VII Bump test.

mechanical damage and the megaphone shall conform to the requirements specified in 7.

8.4 Vibration — This test shall be carried out in accordance with IS : 2106 (Part XVI)-1971*. At the end of the recovery period there shall be no mechanical damage and the megaphone shall conform to the requirements specified in 7.

*Environmental tests for electronic equipment : Part XVI Vibration test.

INDIAN STANDARDS

ON

ACOUSTICS

IS:

- 1031-1967 Methods of measurements on loudspeaker and loudspeaker systems (*first revision*)
1032-1957 General requirements and tests for pressure unit operated horn loudspeaker systems
1033-1957 General requirements and tests for direct radiator moving coil loudspeakers
1034-1957 Loudspeaker systems for community radio receivers
1301-1958 Code of safety requirements for electric mains-operated audio amplifiers
1302-1958 Methods of measurements on audio amplifiers
1490-1959 Recommendations for minimum performance requirements of mains-operated public address amplifiers
1819-1961 Recommendations for general requirements of public address amplifiers
1881-1961 Code of practice for installation of indoor amplifying and sound distribution systems
1882-1961 Code of practice for outdoor installation of public address systems
1885 (Part III/Sec 1)-1965 Electrotechnical vocabulary: Part III Acoustics, Section 1 Physical acoustics
1885 (Part III/Sec 2)-1966 Electrotechnical vocabulary: Part III Acoustics, Section 2 Acoustical and electro-acoustical systems
1885 (Part III/Sec 3)-1967 Electrotechnical vocabulary: Part III Acoustics, Section 3 Sound recording and reproduction
1885 (Part III/Sec 4)-1966 Electrotechnical vocabulary: Part III Acoustics, Section 4 Sonics, ultrasonics and underwater acoustics
1885 (Part III/Sec 5)-1966 Electrotechnical vocabulary: Part III Acoustics, Section 5 Speech and hearing
1885 (Part III/Sec 6)-1967 Electrotechnical vocabulary: Part III Acoustics, Section 6 Acoustical instruments
2032 (Part XII)-1969 Graphical symbols used in electrotechnology: Part XII Electro-acoustic transducers, recording and reproduction systems
2264-1963 Preferred frequencies for acoustical measurements
2382-1970 Mounting dimensions of loudspeakers (*first revision*)
2748-1964 Methods of measurements on microphones
3028-1965 Method of measurement of noise emitted by motor vehicles
3641-1966 Methods of measurements on hearing aids
3931-1966 Sound level meters for the measurement of noise emitted by motor vehicles
3932-1966 Sound level meters for general purpose use
3956-1967 Dimensions of spools for magnetic tapes for sound recording and reproduction
4242-1967 Method of measurement of acoustical noise emitted by ballasts for gaseous discharge lamps
4377-1967 General requirements for magnetic tapes for sound recording and reproduction
4406-1967 General requirements for hearing aids
4479-1967 Methods of measurements on magnetic tapes for sound recording and reproduction
4480-1967 Magnetic tapes for sound recording and reproduction
4482-1967 Hearing aids
4755-1968 Reference zero for the calibration of pure-tone audiometers
4758-1968 Methods of measurement of noise emitted by machines
6098-1971 Method of measurement of the airborne noise emitted by rotating electrical machinery
6229-1971 Method of measurement of the real-ear attenuation of ear protectors at threshold
6370-1971 Tape cassettes for domestic use
6391-1971 Magnetic and ceramic phonograph pick-ups
6964-1973 Octave, half-octave and third-octave band filters for analysis of sound and vibrations
7068-1973 6.25 mm calibration tape
7136-1973 Megaphones
7194-1973 Assessment of noise exposure during work for hearing conservation purposes